AP Microeconomics
Test: Firm Production, Costs, and Revenue
Instructor's Version

Answers: Free-Response Questions

1. Marcy works out of her home as a freelance writer. Publishing companies pay her to write passages for economics textbooks.

A. How would Marcy calculate her accounting profit to determine her taxable income? (3 points)

Marcy should find her total explicit costs. She should also calculate the total amount she received from publishing companies. Her accounting profit is amount received minus explicit costs.

1 point for each sentence.

B. Explain how Marcy's economic profit would differ from her accounting profit. (3 points)

Economic profit takes into account both implicit and explicit costs. Because business owners want to be compensated for their managerial time and energy, time and energy are included as implicit costs when determining economic profit. Therefore, Marcy will take these into account when determining her economic profit.

1 point for each sentence.

C. If Marcy determines that she is making zero economic profit, do you think she should find a new line of work? Explain why or why not. (4 points)

Marcy is making a "normal profit." This means that she is doing as well in her business as she would be in another line of work. Because of this, she has no incentive to transfer her current use of resources to another use. Therefore, she will most likely continue her business.

1 point for each sentence.

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2. The table below shows the daily production information for workers at a company that makes pre-packaged sandwiches for sale in vending machines.

Workers	Sandwiches
1	10
2	22
3	34
4	48
5	55
6	60
7	63
8	65

A. What can the owner of this business change in the short run? (2 points)

Possible answers: Number of workers, type of ingredients in sandwiches, and so on.

1 point for each, up to 2 points.

B. What can the owner change in the long run? (2 points)

Possible answers: Location, amount of inputs, number of workers, and so on.
Alternate answer: All inputs can be changed.

1 point for each answer (2 points total), or full credit for saying that all inputs can be changed.

C. What is the marginal product for adding a second worker? A third? A fourth? (3 points)

12, 13, 14

1 point for each correct calculation.

D. What is the pattern in the marginal product for each new worker, and why does this occur? (3 points)

At first, each new worker increases the marginal product because they can help each other be more productive. At a certain point, the workers begin to get in each other's way. This reduces the marginal product.

1 point for each sentence.

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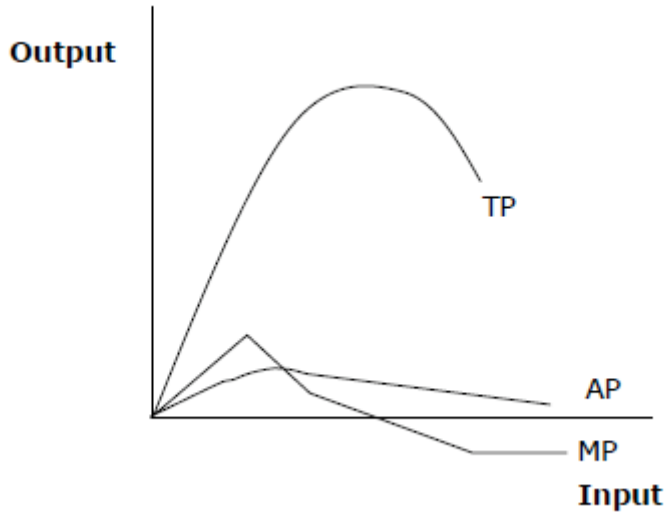
3. Production and Cost Curves

A. The graph below shows total product curve, average product curve, and marginal product curve for a firm. What observations can be made about the relationships among these curves? (10 points)



1. When marginal product is increasing, the total product is also increasing by increasing amounts.
2. When marginal product is decreasing, but still positive, total product is increasing by decreasing amounts.
3. When the marginal product equals zero, total product is at a maximum.
4. When marginal product is negative, total product is falling.
5. Average product is at its maximum where it's equal to marginal product.

2 points for each sentence.

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B. Draw a graph with the ATC, AVC, MC, and AFC for the firm from part A. (8 points) **What observations can be made about the shapes of these curves and the relationships among them?** (7 points)

1. The MC curve drops at first and then rises. This is due to the law of diminishing marginal returns.
2. The ATC and AVC curves first fall and then rise because of the law of diminishing marginal returns. The MC curve crosses the AVC and ATC curves at their lowest points.
3. The AFC curve falls continuously. This is because as output increases, the amount of the total fixed costs gets spread over all of the output.

2 points for each correctly drawn curve (8 points), 2 points for the first observation, 3 points for the second observation, 2 points for the third observation.

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